UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/728,020	12/01/2000	Richard G. Ogier	SRI/4297-2	6111

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EXAMINER
CHOUDHURY, AZIZUL Q

ART UNIT	PAPER NUMBER
2145	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	**Applicant(s)**
Office Action Summary	09/728,020	OGIER ET AL.
	Examiner	**Art Unit**	
	Azizul Choudhury	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _03 June 2005_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-14_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-14_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _8/8/01_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)	5) ☐ Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date _1/02, 4/02, et al_.	6) ☐ Other: _____.

Detailed Action

This office action is in response to the correspondence received on June 3, 2005.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Gupta,

Sandeep K.S. and Srimani, Pradip K. ("An Adaptive Protocol for Reliable Multicast in

Mobile Multi-hop Radio Networks," (IEEE, 1999)), hereafter referred to as Gupta.

1.   With regards to claim 1, Gupta teaches a method for disseminating topology and

link-state information over the multi-hop network, comprising: maintaining a path tree

for each source node in the network that can produce an update message, each path

tree having that source node as a root node, a parent node, and zero or more children

nodes; receiving an update message from the parent node in accordance with the path

tree maintained for the source node that originated the received update message, the

update message including information related to a link in the network; and forwarding

the update message to children nodes, if any, in accordance with the path tree

maintained for the source node that originated the update message in response to the

information in the received update message, if it is determined that the update message

should be forwarded to the zero or more children (Gupta discloses a design that

performs a multi-hop through a network topology with nodes as claimed (section 2, first

paragraph). In addition, Gupta's design also contains trees with nodes as claimed

(section 3.1 & 3.1.1). The disclosure teaches of source nodes, core nodes and children

nodes. The core node sends out acknowledgement messages to the children node to

discover which children nodes exist and thus establishes which paths/links are present.

Using this path/link presence information, the design is able to send data to the children

who replied to the acknowledgement message, since they are the nodes that are known

to be present. Plus, Gupta also discloses that a node is able to receive a message and

is able to forward the message down the tree to the children nodes (section 3.5)).

2.   With regards to claim 2, Gupta teaches a method wherein the information related

to the link indicates whether the update message is to be forwarded to other nodes

(Acknowledgement means are present within Gupta's design (section 3.1.1, second

paragraph)).

3.   With regards to claim 3, Gupta teaches a method wherein the path tree

associated with each source node is a minimum-hop-path tree (Gupta's design uses a

multi-hop method (section 2, first paragraph) in a network with trees (section 3.1 and

3.1.1). One of the benefits of tree architecture is the ability for finding the

fastest/minimum path).

4.   With regards to claim 4, Gupta teaches a method further comprising obtaining link-state information from one or more nodes in the path tree maintained for a given source node for use in developing the path tree to that source node (Acknowledgement means are present within Gupta's design (section 3.1.1, second paragraph)).

5.   With regards to claim 5, Gupta teaches a method wherein the link is a wireless communication link (The network in Gupta's design is mobile and hence wireless (section 2, first paragraph)).

6.   With regards to claim 6, Gupta teaches a method further comprising sending a new parent message to a node selecting that node as a new parent node for the source node originating the update message (Tree architectures allow for changes to node layouts to occur, which means that parents may become children and children may become parents. Gupta suggests within the disclosure that such means are also present in his design (section 3.1.1)).

7.   With regards to claim 7, Gupta teaches a method further comprising receiving from the new parent node in response to the new parent message link-state information associated with the source node that originated the update message (Messages are able to be transferred between all the nodes of Gupta's design (section 3.1 and 3.1.1). In addition, as stated above, the layout of the nodes is allowed to change).

8.   With regards to claim 8, Gupta teaches a method wherein the new parent

message included a serial number and the link-state information received in response to

the new parent message is associated with update messages having serial numbers

that are greater than the serial number included in the new parent message (One of the

major purposes of the multi-hop network design is to obtain the status of the network.

In addition, sequence numbers are provided (section 3.1.1)).

9.   With regards to claim 9, Gupta teaches a method further comprising:

determining that a path through a new parent node for the source node originating the

update message has the same number of node hops as the path through the current

parent node, and maintaining the current parent node as the parent node for the given

source node (Another incentive of the tree architecture is that messages are able to

record which nodes were visited (section 2)).

10.   With regards to claim 10, Gupta teaches a method further comprising:

determining that a path to the source node originating the update message ceases to

exist; and maintaining the current parent node as the parent node for the source node

(In tree network architectures, data is able to route itself by looking ahead to see if a

path is available. In addition, Gupta suggests that data is able to route itself (section

2)).

11.   With regards to claim 11, Gupta teaches a method further comprising:

broadcasting the update message to the children nodes if the number of children nodes

exceeds a predefined threshold when forwarding the update message to children nodes

(Gupta's design allows for topology to be monitored and updated constantly (section 2).

This feature along with the node status monitoring feature suggests that means are

present for notifying the presence of too many nodes).

12.   With regards to claim 12, Gupta teaches a method further comprising

transmitting the update message to each child node using a unicast mode if the number

of children nodes is less than a predefined threshold when forwarding the update

message to children nodes (Gupta's design allows for messages to be transmitted by

unicast as needed (section 2)).

13.   With regards to claim 13, Gupta teaches a method further comprising:

computing a parent node for each neighbor node and source node; and determining

which neighbor nodes are children nodes for a given source node (For a tree network

architecture to function properly, means must be present by which to detect the parent

node and which are the children nodes. Gupta's design allows for the data structures

within the nodes to identify themselves accordingly (section 3.2)).

14.   With regards to claim 14, Gupta teaches a network, comprising: a plurality of

nodes in communication with each other over communication links, each node

maintaining a path tree for each source node in the network that can produce an update

message, each path tree having that source node as a root node, a parent node, and

zero or more children nodes, wherein one of the nodes (i) receives an update message

from the parent node in accordance with the path tree maintained for the source node

that originated the received update message, the update message including information

related to a link in the network, (ii) and forwards the update message to children nodes,

if any, in accordance with the path tree maintained for the source node that originated

the update message in response to the information in the received update message, if it

is determined that the update message should be forwarded to the children nodes

(Gupta discloses a design that performs a multi-hop through a network topology with

nodes as claimed (section 2, first paragraph). In addition, Gupta's design also contains

trees with nodes as claimed (section 3.1 & 3.1.1). The disclosure teaches of source

nodes, core nodes and children nodes. The core node sends out acknowledgement

messages to the children node to discover which children nodes exist and thus

establishes which paths/links are present. Using this path/link presence information, the

design is able to send data to the children who replied to the acknowledgement

message, since they are the nodes that are known to be present. Plus, Gupta also

discloses that a node is able to receive a message and is able to forward the message

down the tree to the children nodes (section 3.5)).

Response to Remarks

The amendment received on June 3, 2005 has been carefully reviewed but is not deemed fully persuasive. Within the remarks, the applicant's representative focuses his arguments on a single point of contention. That issue is the trait that the nodes of the claimed design can both receive and forward update messages in accordance with the established multicast tree. The examiner would like to point out how when a tree is established, nodes within Gupta's design are able to receive messages and then propagate the messages down to it's children nodes (equivalent to forwarding messages) (Section 3.5, Gupta). Hence, the examiner must stand by the argument that the claimed design lacks novelty against the Gupta prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Azizul Choudhury whose telephone number is (571) 272-3909. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Valencia Martin-Wallace can be reached on (571) 272-6159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

AC

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PRIMARY EX AU.2145